DEALER SECTION OF Electricity on the Farm

With which is consolidated The RURAL ELECTRIC DEALER. Established 1920. The only publication devoted exclusively to the electrification of towns and farms and reaching the power companies and electric dealers serving this rapidly developing rural market.

Vol. 2 . APRIL, 1929 No. 4

It's a Time Saver

Field work will soon start, in all northern agricultural sections, and once it does it will be too late to effectively carry on sales campaigns for electrically operated equipment.

Right now is the time that final efforts should be made to sell such equipment. But don't depend upon circulars or advertising alone to accomplish your purpose. Get your salesmen out in the field to talk to farmers on their own ground.

One of the most effective arguments right now for electrically operated equipments is the fact that it saves time. Of course we all know that any power equipment, if it deserves a place in the agricultural picture, saves labor. But the time saving element is one which will appeal to every farmer when he is about to enter his busiest season of the year.

Point out how the automatic, electrically operated feed grinder saves him time by making it unnecessary to haul his grain to the custom grinder and back again, to say nothing of the usual long delay when a number of farmers are doing the same thing. Point out to him how the chore motor can be used for numerous purposes and how simple a device it is to operate. And don't forget the time saving features of electric milkers and cream separators. All of these points will find a receptive field in the mind of the farmer now that he is looking ahead to the usual spring problem of getting hired help for field cultivation. Remember, many farmers have found hired help unnecessary when they have used electric service, and the equipment which it operates, to fullest advantage.

But now is the time to make your final effort! Next month it will be too late.

* ELECTRICITY ON THE FARM (except this "Dealer Section," printed on tinted paper) has already been placed in the hands of more than 112,000 farmers along the rural lines operated by more than 200 power companies. Hence the articles you find in this copy will be read, or have already been read, by many of the farmers in your territory. You are, therefore, in a position to approach these farmers on the subjects with which they are familiar. Your way is paved for increased sales of electrified farm equipment.

Send for your copy of our news Service Manual. Use the coupon below.

An Announcement of interest to Rural Service Engineers

THE Prater Pulverizer Company, manufacturers of Prater Mills, announces the organization of a merchandising service division devoted exclusively to central station merchandising.

The rapid growth of business and the demand for Prater Mills for economical feed grinding on farms supplied with power from the central stations has made this new department an urgent necessity.

PRATER PULVERIZER CO.
817 West Washington Blvd.,
Chicago

Prater Pulverizer Company, 817 W. Washington Blvd., Dept. K., Chicago.

Send me a copy of your Sales Manual compiled for rural service departments of central stations.

Name .....

Address .....

City ..... State .....

GUARANTEED "Cost per month of Service"

The New Plan that's a Winner

HERE'S the selling plan for Glass Jar Type of batteries that means more battery sales—no dissatisfied customers — no arguments — no profit-eating, no unfair adjustments.

You guarantee to a customer *in advance* the maximum amount his battery service will cost per month. (as low as $1.75 per month according to type of battery). Adjustments are made when necessary according to a definite scale which the customer understands at the time of purchase.

This new and finer plan practically wipes away sales resistance. You sell more batteries and make better profits. Your customers are 100% satisfied and there are never any arguments.

Get full details of this up-to-the-minute, successful sales plan. Ask your nearest wholesaler, or write us.

GLOBE ELECTRIC COMPANY
14-28 Keefe Avenue Milwaukee

A selling feature — improved connectors! Big connectors reduce resistance and prevent heating and loss of current.

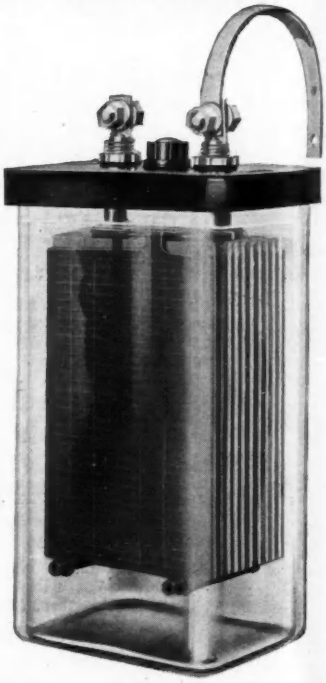
"The Better Battery"

GLOBE

MADE EVEN BETTER

WESTERN Cable LONG LIFE BATTERIES

You Can sell Western Cable Batteries with absolute confidence



For over 15 years we have specialized in developing a farm lighting battery that has very few equals.

Those of our dealers who have been handling WESTERN CABLE BATTERIES know that there is nothing on the market that can compare with them in value and service.

The sediment space is large . . . plenty of room for deposits. The plates are large and are supported from the top with an unbreakable cover, reenforced on the inside, thus insuring against breakage.

Large production of plates of different kinds for the trade.

WESTERN CABLE & LIGHT CO.

Baldwin WESTERN Cable LONG LIFE BATTERIES Wisconsin

Is the Contractor-Dealer

An Efficient Doctor

For the Ills of Domestic Electric Water Heating?

By CHAS. F. MORELAND

THERE seems to be a nation-wide opinion that the profits of the contractor-dealer business are far from satisfactory. Many of the large supply houses feel that this condition is simply a natural cycle in business due to the fact that building is not active and that the people now building are buying close. They are trying to justify the extension of credit far beyond the safe and sane point, depending on the future to change from a restrained market to an over-flowing market at which time the small dealer can again get high prices and pay his way out of the hole. There is every indication that the buyers' market is with us for a long time, and no dealer can justify his bidding for work at a price below his actual costs and overhead and a fair profit. If these men could not get such easy terms they would adjust their immediate scale to a point where they could make profits and pay their bills promptly, or get out of the business.

Any market for any type of material and labor can absorb only a certain amount in dollars and cents per capita. Therefore if the number of contractor dealers in ratio to the population would form a basis for the jobber to help weed out the undesirables, so that the correct number of dealers would be maintained, he would not suffer the losses he will suffer if he continues to aid so many men starting up a dealer store with too limited finances. With the credit situation as it is, the unwise dealer forces all desirable dealers to fight for existence by lowering prices and standards of work. And who finally pays? THE CUSTOMER PAYS!

* * *

This brings me to the main theme of this article with a background to show why the "low margin" dealer cannot be an efficient doctor of the mechanical ills of electrical equipment in the home. They are not in a state of mind or finance to propose adequate installations in new homes or to make an analysis of the older homes and sell the owner an up-to-date system. In either case, they are afraid that if they suggest anywhere near an adequate system, the owner will go "shopping" for some one who will do less for less.

No wonder there is so little *knowledge* displayed by these dealers on the subject of up-to-the-minute methods of heating water by electricity. I have found very few who know the local rate schedule for domestic electricity (other than the rate for the first few KWH in the first step) or remember the fixed charge at which no electricity is allowed. Do they know the competitive gas rate and explain it intelligently, to help build good-will for the general acceptance of such equipment that would swell their sales volume and give work to their installers? The answer in most cases is decidedly, No!

If so little interest is taken in

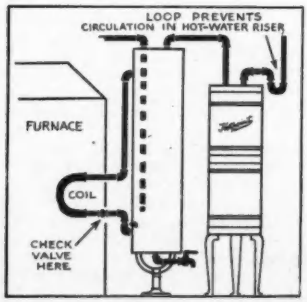
sales which means cash in the till, can you expect that the short margin dealer, operating too close to the ragged edge, will take time to study the technical details of the construction of Electric Water Heaters, and what effect these would have on the cost and the adequacy of the hot water supply?

There are so many conflicting opinions on what is the best method of Electric Water Heating to recommend and what return may be expected, it has seemed desirable to make available these facts about the various methods of using electricity for this purpose.

Experience shows that the rates suggested will get a reasonable amount of Water Heating sales provided proper merchandising effort is put forth. In connection with the rates suggested, we have assigned the various costs per KWH that will give customers approximately the same monthly bill for the same volume of hot water used.

As the first step in this outline the basic systems of Electric Water Heating now in use are analyzed:—

A. High wattage, manually operated intermittent service with thermostat protection—suggested rate 2c per KWH.
   1. Characteristics of Heater Installation.
      a. Load 3 KW or above—3 KW recommended.
      b. Tank size, 10, 18 or 30 gallons, depending on water requirements.



Electric Tank Heater in Series with Furnace Tank

      c. Operating characteristics—hot water delivery at top of tank without mixing with cold water. Either an outside circulation type of heater, or a tank heater with positive internal circulation will give the desired results.
      d. Auxiliary Control Equipment. Hand operated switch in heater circuit. A double throw switch between the range and water heater is not recommended as this seriously affects the availability of hot water.
   2. Advantages of the Method.
      a. Gives the customer definite control over current used.
      b. Gives electric hot water service of a kind to satisfy customers unable to pay more than $3.00 or $4.00 monthly.
      c. Low initial cost of heater.
      d. Very high diversity factor.
      e. Customer can shift over to automatic service at any time.
   3. Disadvantages of the Method.
      a. If an outside circulation type of heater is used, the efficiency will be low. With a tank heater having positive internal circulation a higher efficiency is assured.
      b. The load characteristics are such that a rate much below the cooking rate is not justified, except as a discount for large quantity used.
      c. Poor individual load factor.
      d. High wiring cost plus the difficulty of obtaining a high standard of installation (when installing electric heaters on tanks already in use).

B. High wattage, automatically operated with thermostat control, 24-hr. hot water service. Suggested rate 2c per KWH.
   1. Characteristics of Heater Installation.
      a. Load 2, 3 or 5 KW—3 KW generally adequate.
      b. Tank size, 10, 18, 30 or 52 gallons depending on water requirements.
      c. Operating characteristics.
         (1) Hot water delivery at the top is desirable as in Case A. This gives quick recuperation of hot water after excessive draw-offs have been made.
         (2) The line switch is continually in the "on" position.

(3) The thermostat shall maintain the temperature in the tank at 150°F. to 160°F. Lower temperatures advisable in bad scale districts.

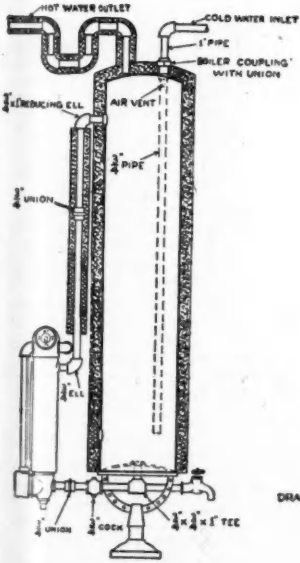
d. Auxiliary Control Equipment. It is advisable to use either a double throw switch or automatic Peak Limiter in the circuit between the range and water heater. The tank capacity will usually carry over any coincidental demand for hot water when the range is in use.

2. Advantages of the Method.
   a. This gives a service which will meet the widest variety of conditions of hot water use—it automatically adjusts itself to the hot water requirements. This is the highest type of service installation.
   b. Very high diversity factor.
   c. Better load factor than in Case A.
   d. Identical equipment can be used for either intermittent or automatic operation.
   e. Provides for customer control of current consumption in case intermittent service is desired.

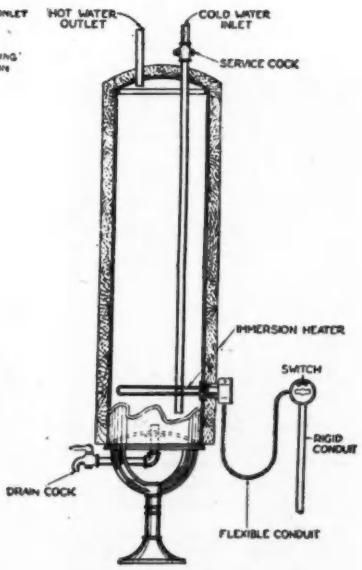
3. Disadvantages of the Method.
   a. Requires a thoroughly insulated tank because tank is continuously hot—an outside circulation type of heater is particularly inefficient in this service.
   b. Other disadvantages as in Case A.

C. Low wattage, automatically operated with thermostat control—no limiting devices. Suggested rate 1¾c per KWH.

1. Characteristics of Heater Installation.
   a. Load, 500 to 1,500 watts.
   b. Tank size, 30, 52 or 100



TYPICAL INSTALLATION OF OUTSIDE CIRCULATION TYPE HEATER



TYPICAL INSTALLATION OF IMMERSION TYPE HEATER

gallons depending on water requirements.

c. Operating characteristics.
(1) Rapid delivery of hot water to the top of the tank is not an essential since the tank size should be proportioned to take care of the maximum short period demand. The temperature recuperation is slow.
(2) The line switch is continually in the "on" position.
(3) The thermostat shall maintain the temperature in the tank at 150°F. to 160°F. In some cases lower temperatures may be acceptable.

d. Auxiliary control equipment —none.

e. General conditions. The tank and heater must be carefully selected to fit conditions.
(1) Average small family in the south if laundry is not done at home—30 gallon tank, 500 to 1,000 watt heater.
(2) Same if laundry is done at home—30 gallon tank, 1,500 watts, or 52 gallon tank and 1,000-1,500 watt unit.
(3) Minimum for northern conditions—52 gallon tank, 1,000-1,500 watt unit.

2. Advantages of the Method.
a. The customer can forget switching the heater "on" and "off."
b. Hot water is immediately available.
c. Low KW demand.
d. High individual load factor.
e. Due to low demand, an efficiently insulated tank heater justifies a better rate.
f. Wiring costs are low due to small installed capacity

3. Disadvantages of the Method.
a. Larger tank involves somewhat high first cost.
b. Large demands may take all the available hot water, which means a wait of several hours for more hot water.
c. This service is not as adequate as with a high wattage unit.
d. Requires more correct information as to the customer's water consumption and hence more care in selling the correct size of tank.
e. Due to the longer hour use the demand of the range will practically always coincide with the water heater demand.

D. Low wattage, automatically operated with thermostat control and limiting devices. Suggested rate 1½c per KWH.
1. This is a special case of Case C and consists of heaters being connected through one of the following limiting devices:
a. Double throw, manually operated switch between the range and water heater.
b. Hotpoint Automatic Peak Limiter between the range and water heater.
c. Time switch to prevent use of the heater during periods of the system peak, as, for instance, 4:30 to 7:30 p.m.
2. Advantages of the Method. Same as for C except:
a. It prevents the maximum demands of the water heater and range from occurring at the same time.
b. It justifies a lower rate because of a better load factor.
c. It is largely an off peak load.
d. With a time switch off peak heating is assured.
3. Disadvantages of the Method.
a. The double throw switch requires customer attention, is expensive to install and interferes with adequate hot water service.
b. The peak limiter simplifies the wiring and gives better service than the double throw switch but increases the investment.
c. The time switch increases the investment and servicing a larger tank for the same service.

E. Off-peak storage with time switch control. Suggested rate 1¼c per KWH. This is a special case of Case D.
1. Characteristics of Heater Installation.
a. Load, 1 KW and up depending on tank size and allowed hours for heating up. The unit must be large enough to heat the entire tank in the allowed heating time and have some additional reserve capacity.
b. Tank size. This will also depend largely on the time allowed for heating up and

(*Continued on page D20*)

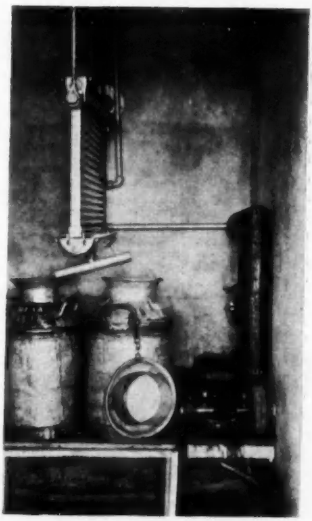
A Study of Dairy Coolers In California

By BEN D. MOSES and J. R. TAVERNETTI *

THE California Committee on the Relation of Electricity to Agriculture is making a study of dairy refrigeration in California. This study consists of a survey and determination of power consumption and operating characteristics.

The survey, which has been completed, covered 73 different dairies in various parts of the state. Sixteen different makes of refrigeration machines were in use. Fifty-three of the dairies had storage boxes made on the farm, 8 had factory made storage boxes, and 12 had no storage boxes. The insulations used in the boxes were sheet cork, granulated cork, sawdust and rice hulls, named in the order of their popularity. Only four dairymen were not satisfied with their plants; two because their plants were too small; one because his plant was too large; and one because his system did not keep his box at a uniform temperature. Fourteen had had repairs which consisted mainly of minor adjustments and replacements of small parts. The average number of cows and gallons of milk cooled per day was 85 and 235 respectively, for the dairies with ammonia machines, and 41 and 124 respectively, for those with sulphur dioxide and methyl chloride machines. The rated capacity in tons of ice per 24 hours varied from ¼ to 4 with an average of 1.6 for the ammonia machines, and from 1/6 to ½ with an average of .35 for the sulphur dioxide and methyl chloride machines. The gallons of milk cooled per day per ton rated capacity of the compressor varied from 33 to 900 with an average of 177 for the ammonia machines, and 84 to 1440 with an average of 383 for the methyl chloride and sulphur dioxide machines. The general tendency was to cool the milk to 40° and keep the storage box at the same temperature. The initial costs of the complete plant varied from $325 to $3,500 with an average of $1,630 for the ammonia machines, and $400 to $1,450 with an average of $930 for the sulphur dioxide and methyl chloride machines.

The power consumption observations to date show an average of .14 kilowatt hours per gallon of milk cooled during the summer



Brine pump, aerator, and can tipper used on J. Davis Dairy, Elmira, Calif. Mr. Davis milks 30 cows and ships the milk by truck a distance of 60 miles.

* Abstract of paper presented at the Dairy Machinery Meeting of the American Society of Agricultural Engineers, Pacific Coast Section, November 22, 1928.

months. At 2c per kilowatt hour this would amount to .28 of one cent per gallon of milk.

Summer and Fall Observations on Six Plants

Six different plants were selected in the vicinities of Davis and Sacramento for carrying on the investigation of operating characteristics. Two observations have been conducted, one during the summer and one during the fall, and a summary of the data is given in the tables. Some of the conclusions drawn from the results are:

1. The running time per day of the compressor, which for the ma-

Summary of Results of Intensive Tests on Refrigeration Machines Used for Cooling Milk on Six Different Dairies in the Vicinity of Davis and Sacramento.

SUMMER TEST

Line No.	Dairy Number	1	2	3	4	5	6
1	Rated capacity of compressor in tons of ice per 24 hours	¼	¼	1.0	1½	⅜	⅜
2	Dimensions of storage box (inside), in feet	4x4x7	3x5x5	5x6x6½	6x11x7	4x6x7	6x6x7
3	Size of storage box in cu. ft.	112	75	195	462	168	252
4	Insulation used in storage box *	3″ S. C. 4″ R. H.	4″ S. Cork	6″ G. Cork	4″ Rice Hulls	3″ S. Cork	6″ Rice Hulls
5	Gallons of brine	120	190	0	350	150	200
6	Cost of complete plant	$800	$1,150	$1,450	$1,500	$1,100	$1,200

7	Date of Test	Aug. 13–18	July 30–Aug. 4	Aug. 6–10	Aug. 7–11	July 23–27	Aug. 13–17
8	Average gallons of milk cooled per day	54	84	225	214	71	213
9	Average gallons of milk stored per day	28	42	113	111	37	103
10	Average hour compressor run per day	10.3	13.4	7.4	9.9	11.9	19.3
11	Average KW hours used per day by compressor and brine pump	10.2	9.0	7.1	24.9	14.3	22.5
12	Average brine temperature	18°	.....	.....	25°	20°	22°
13	Average storage box temperature	32°	45°	50°	40°	37°	43°
14	Average temperature inside milk house	73°	79°	77°	77°	75°	71°
15	Average temperature milk cooled to	36°	44°	52°	47°	39°	42°
16	Average degrees milk was cooled by machine	38°	31°	13°	26°	39°	22°
17	Gallons of milk cooled 1° F. per hour of operation per ton rated capacity	800	780	382	390	625	649
18	Kw. hours consumed per gallon of milk cooled 1° F	.0048	.0035	.0025	.0043	.0052	.0048
19	Ratio of heat extracted from milk to total heat extracted by compressor (based on rated capacity and running time)	.54	.52	.27	.25	.42	.44
20	Ratio of heat extracted from milk to heat equivalent of the energy input to compressor motor and brine pump motor (based on Kw. hours consumed)	.47	.68	.97	.53	.47	.49

* Sheet Cork (S. C.) (R. H.) = Rice Hulls (G. Cork) = Granulated cork.

chines tested varied from 6.3 to 19.3 hours, depends upon its size, the gallons of milk cooled, the number of degrees the milk is cooled, the temperature difference between the air inside and outside of the storage box, and the size and insulation of the storage box.

2. Twenty-five to 54 per cent of the plant load is produced by the heat removed from the milk.

The results of this investigation so far seem to indicate that the big problem in dairy refrigeration is the selection of the proper size plant. In order for this to be possible, it seems necessary:

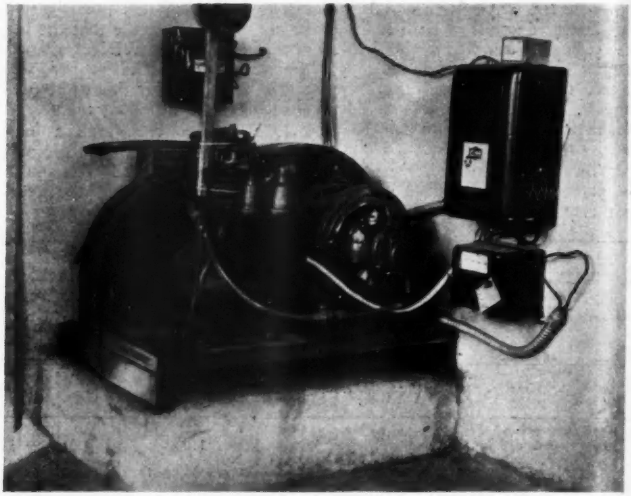
1. That the refrigeration machine manufacturers rate their machines upon a standard basis and in terms understandable to the average dairyman.

Summary of Results of Intensive Tests on Refrigeration Machines Used for Cooling Milk on Six Different Dairies in the Vicinity of Davis and Sacramento.

FALL TEST

Line No.	DAIRY NUMBER	1	2	3	4	5	6
1	Rated capacity of compressor in tons of ice per 24 hours..	¼	¼	1.0	½	⅝	⅝
2	Dimensions of storage box (inside), in feet.....	4x4x7	3x5x5	5x6x6½	6x11x7	4x6x7	6x6x7
3	Size of storage box in cu. ft...	112	75	195	462	168	252
4	Insulation used in storage box *	3" S. C. 4" R. H.	4" S. Cork	6" G. Cork	4" Rice Hulls	3" S. Cork	6" Rice Hulls
5	Gallons of brine.....	120	190	0	350	150	200
6	Cost of complete plant.....	$800	$1,150	$1,450	$1,500	$1,100	$1,200
7	DATE OF TEST	Oct. 15–20	Oct. 15–19	Oct. 22–26	Oct. 22–26	Oct. 13–17	Nov. 5–9
8	Average gallons of milk cooled per day.....	64	79	189	233	73	120
9	Average gallons of milk stored per day.....	33	39	98	133	38	60
10	Average hours compressor run per day.....	10.2	12.2	6.3	7.9	9.1	12.2
11	Average Kw. hours used per day by compressor and brine pump.....	10.0	8.3	6.2	17.8	10.7	16.3
12	Average brine temperature....	12°	.....	.....	20°	23°	20°
13	Average storage box temperature.....	28°	44°	45°	39°	36°	40°
14	Average temperature inside milk house.....	69°	69°	59°	58°	67°	58°
15	Average temperature milk cooled to.....	35°	43°	44°	46°	37°	35°
16	Average degrees of milk was cooled by machine.....	31°	29°	18°	26°	34°	28°
17	Gallons of milk cooled 1° F. per hour of operation per ton rated capacity.....	779	752	540	512	730	740
18	Kw. hours consumed per gallon of milk cooled 1° F.....	.005	.0036	.0018	.0029	.0043	.0049
19	Ratio of heat extracted from milk to total heat extracted by compressor (based on rated capacity and running time).....	.53	.50	.36	.34	.49	.50
20	Ratio of heat extracted from milk to heat equivalent of the energy input to compressor motor and brine pump motor (based on Kw. hours consumed).....	.47	.65	1.30	.81	.55	.49

* (S. C.) = Sheet Cork. (R. H.) = Rice Hulls. (G. Cork) = Granulated cork.



An air-cooled sulphur dioxide refrigeration machine used for cooling milk on the J. Davis Dairy, Elmira, Calif. A service recorder is attached to the cylinders for the purpose of determining the running time per day.

2. That the salesmen of these machines know and tell the dairymen within a reasonable amount, the quantity of milk they will handle under the conditions in which they will operate.

3. That as much help as possible be given the dairymen (1) in designing his storage box to be efficient and correct in size, and (2) in the correct operation of his plant.

Farm Rates Reduced in California

Electrical rate reductions of from 14 to 20 per cent have been announced by the Southern Sierras Power Company for the Imperial Valley territory. This move is in line with a general lowering of price to rural consumers and it is not to be extended to city patrons. The cut was made voluntarily by the power company after conferences with farm bureau officials of southern California.

"We Can't Live on Old Age Alone"

By K. C. LINDSAY
Lindsay Bros., Inc., Milwaukee, Wisc.

FOR years the name of Lindsay Bros., Inc., has stood out as meaning the place where our dealers could get the best and latest equipment and tools for their trade.

We sold a lot of gas engines which in their time were the best thing for the farmer to help cut down the labor on his farm. But as the Power Companies started to extend their high lines we began to realize that there was opening up to us a big field for motors and motor driven appliances. We also knew it meant a lot of study and training. We couldn't help but wonder when we used and operated the various electric appliances in our home, how simple and easy it was for the clerk in the store to sell them to us. Also, all we had to do was to push the plug in the outlet in our wall, turn on a

switch, and they were ready to do our bidding.

We figured that if the average girl in the 5 and 10 cent store or the $1.00 store could sell us plugs, fuses, etc., with practically no training, and the average store in town could sell us the larger appliances for our home, then Lindsay Bros. salesmen could, by proper training, sell motors and motor driven appliances to our dealers.

They could also show our dealers their outlet or market, and teach them this kind of selling.

About five years ago we started to distribute a well known make of motors, taking advantage of the manufacturer's offer to have his representative go out with our salesmen and show them the how of selling motors. By this means and thru the results of the sales made, we have been able to show our dealers the wonderful opportunity opening up to them by consistently working with our rural trade.

By means of our motor business we have increased our pump jack sales and just now we are taking on a line of hammer mills with the expectation of developing a trade on the larger size motors. Last year we sold more 5 H.P. portable farm motors than any other year, and believe that there will be a steady increase.

We are also working with the Power Company in Milwaukee. We honestly believe that a line of good motors made by a Company that helps and backs up the jobber, is one of the cleanest and best lines to sell and one that stays sold easier than most any other line.

Legislation to Protect Farmers

A general order has been entered by the Indiana Public Service Commission requiring any person or company desiring to construct or operate electric properties to submit to the commission for its approval a full description of the project before attempting to collect any money or taking any other actual steps. Explaining the reason for this order, the commission said: "In many places in the state persons desiring to engage in speculative enterprise have, without either engineering experience or financial ability behind them, come into many rural communities in the state and, by misrepresenting the facts, have collected money from unsuspecting persons for so-called 'connection charges' for connecting them to electric transmission lines which have never been started. In certain instances they have either failed to build lines which would supply satisfactory service or have built them in such manner as to constitute a menace to the lives and safety of the people generally. In most cases money enough to pay for the entire cost has been donated by prospective patrons."

Lindsay Bros. Office, Salesroom and Warehouse, Nos. 72 to 94 Reed Street, Milwaukee, Wis.

The successful continuation and development of this farm implement and hardware business for a period extending over sixty years proves that its customers are well served. The rural electrification movement brings new merchandising opportunities the progressive jobber and dealer are not overlooking.

Pullin' Together
Power Companies—Private Plant Salesmen
—Wiring Contractors—Plumbers—
Implement, Hardware and other
Equipment Dealers
That all rural families may fully utilize the advantages
of electricity, and benefit by intelligent salesmanship

WHILE the individual electric plant and the high line each occupy about half of the total picture of rural electrification, the electric water system is common to both and, next to electric lights, provides the user with the greatest convenience electricity can give him—water under pressure.

The individual plant salesman and the rural service representative of the power company are on common ground when they talk to users about the electric water system. It doesn't matter a particle if the electricity which powers the water system comes from the individual plant or the high line, for the pump gives the same unfailing service with either type of current.

Fresh Water for Everybody

There is a sales story of immeasurable appeal in the water system which "lets the water do the running." Freedom from that weary march through snow and wind and rain and sleet from the house to the pump in the yard and back again, is the outstanding benefit of running water into the kitchen. The civilizing influence of the bathroom is a direct result of the water system. Time and labor saving in the pumping of water for live stock, the convenience and profit-making possibilities of an ample water supply in poultry houses, the cash return from plenty of running water in the cow barns and milk house—they all are the outgrowth of an electric water system installed on the farm.

More Necessary than Lights

Once a farmer has electricity installed on his place, it is inevitable that his thoughts will turn to the benefits electricity can bring him outside the primary advantage of plenty of good bright lights. He thinks of electric churns, motor-driven cream separators, vacuum cleaners, electric washers, power milkers, a dozen and one other electric appliances. But first of all, he thinks of running water as the first benefit to follow his electric lights. This is only natural, for of all the power appliances, the electric water system stands out as the most desirable from a convenience and a money-making standpoint.

Every farm user of electricity is in the market for an electric water system, if he does not have one already in use. There is only one step between his installation of electricity and the purchase of a water system. That step is a process of selling by a man who can present the story of running water in all its many phases.

Water systems are comparatively low in price, and there is not the obstacle of cost which is encountered in the sale of much other farm equipment. The advantages they bring so far outweigh the original cost that the business of selling water systems is not a price proposition at all.

Good Business, and Profitable

Compute the weight of a bucket of water. Determine how many times the farm wife goes to the outdoor pump in a day. Find out how often the farmer himself must pump the water for his stock. Show the farm family the tons of water that are carried hundreds of miles in a year's time. With electricity already on the place, the farmer is indeed a poor business man if he doesn't appreciate the

labor and cash money saving that awaits him through installation of a water system.

The farmer, despite all reports to the contrary, is a business man and generally a good one. The amount of investment in his land, buildings and equipment often rivals or exceeds the money invested in prosperous city business establishments. Generally, the selling appeal to this rural business man must be made on a business-basis, the amount of money a given appliance can save him, the amount of direct profit it can make, the volume of labor it can save, and the advantages of family contentment, health and comfort that it can bring.

With business acumen enough to put electricity to work for his family, the farmer will respond to a business-like proposition which will make inanimate water travel to the points where it is most needed, and then gush forth at the simple turning of a faucet—*S. M. Ballard.*

Measuring the Serviceman

WE agree that a Serviceman is necessary to the success of any Farm Light business, and we'll line him up alongside a six-foot qualification rule and see what standards he must measure up to if he's to be a real Serviceman of the utmost value to his employer, to his employer's business and to his employer's customers.

FIRST: The successful Serviceman must like his job and want to stay on it. A Serviceman who likes his work, will get onto a new job quickly, will do it well, and will win additional good-will for your business. Moreover, if he's happy in his work, he'll stick on the job longer, thus saving you the loss that always comes from labor turnover.

SECOND: He must be a good mechanic and have a practical knowledge of gas engines, electric generators, and storage batteries; for it was for service on this type of equipment that the position of Serviceman was created.

THIRD: He must have tact. He must be able to smooth out the wrinkles of fault-finding, peevish, over-critical customers, and turn them into friends. If he can't get the customer's point or view, he'd better get into some other kind of work, because on this job, he must not only satisfy the customer; he must make them satisfied with their purchase.

FOURTH: He must have a pleasing personality. People instinctively trust—and confide—in men whom they like, and no one likes a grouch or a know-it-all attitude. If your Serviceman is to get leads for future sales from the people with whom he comes in contact (and that's part of his job), he must make your customers like him. He must win their confidence, and hold it.

FIFTH: He must be able to make intelligent reports of the service conditions he finds in the field. If there are difficulties in the field (and there always are), you and the manufacturer want to know them in order to correct them. And your Serviceman is the logical person to give an intelligent report on the situation.

SIXTH: He must be capable of distinguishing between free and charge service. There are many times when service *must* be free. A part of your success depends upon it. But there are more times when service is chargeable to the customer, and a well-qualified, well-trained Serviceman quickly recognizes chargeable service, makes the customer see the point, and collects for the work he does.

When a Serviceman measures up to this rule, when he's willing to subscribe to its requirements, you're well advised to hire him. —Westinghouse Bulletin.

Auto Tourist: "I clearly had the right of way when this man ran into me, and yet you say I was to blame."

Local Officer: "You certainly were."

Autoist: "Why?"

Local Officer: "Because his father is Mayor, his brother is Chief of Police and I'm in love with his sister."

Bob's Page

Devoted to Merchandising of Electrical Equipment in Rural Communities

Conducted by Robt. J. Fulton

Try the "Case System" in your Selling

Farmers will listen to news about the Electric "Hired Man" on other Farms

NOW is the time to go after all high line users to sell them chore motors or portable motors. If you don't go after this business *now* the farmer will soon be so up to his neck in planting, etc., that he will have little time to talk to you. If he is going to get a portable motor, now is the time so that it will take that much labor and time off from him and his hands. Here is some food for thought:

"I've had these motors setting on my floor long enough," says Mr. Live Dealer. I'm going to see if I can't get some of them working out on the farms. Let's see, what shall I take along with me today when I call on the prospects in the country?

"Modern farms must have running water so I want to take along that pump catalogue. Yes, and the milking machine, and these folders on hammer mills, and I sure don't want to forget this data book that the motor manufacturer sent me. It explains all the stuff that I need to talk motors as I should. Now let's see, who am I going to see first? Oh yes—Henry Brown, out on Dog Lake Road. Henry uses electricity for lights and cream separator and around the house, but he's never used it where it will save him the most labor around his farm."

So he drives over to Brown's farm and finds Henry out back in the barn. After the usual friendly talk we hear something like this:

"You don't mean to tell me, Henry Brown, that you still haul your grain down to the mill in town! Let me tell you what Murray does over on the other pike. He has a hammer mill and grinds one and a half tons of grain every month at a cost of only 90c. To have the same amount of grain ground at the village mill will cost you $4.12. And say, the village is 5 miles away so you will have also the cost of hauling it 10 miles. Your time, labor, gas, oil and wear on your automobile amount to at least $4.00, so you are paying $8.12 per month for what would cost you about 90c with a motor and feed grinder of your own.

"And Henry, when you are not running the hammer mill you can place the motor about here to run your milking machine by using the belt this way. After you milk, take off the belt and connect it to the feed mill. You throw in the switch and go in to breakfast. This mill can grind two feedings, one for night and one for next morning, while you are at breakfast or doing other work.

"You can also use this motor to elevate the grain to that storage bin above and to do plenty of other jobs around here. You can move it about.

"You know Arnold, over on the county road. He kept a record of his feed grinding costs. His cows eat one bag of feed a day. Formerly, he took the grain to the mill, 3½ miles away, to have it ground. He made the trip every 2 weeks. It took two men 30 minutes to fill 15 bags. At 40c an hour this cost 40 cents. It took 45 minutes to drive to the mill with a team and 45 minutes back. Usually there was a wait at the mill, anywhere from a few minutes to 2 hours,

with 1 hour as an average. That meant 2½ hours for team and driver, counting time on road and waiting. At $1.00 an hour for the outfit this would be $2.50. The mill charged 10c a bag for grinding or $1.40 for the 14 bags. That brought the total cost of handling, carrying and grinding the grain to $4.30 for a two weeks supply.

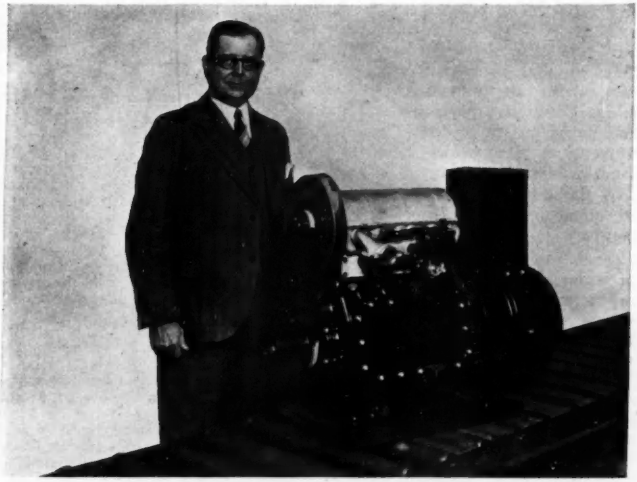
"Now he saves $6.00 to $8.00 a month. Grinding by electric motor cuts out the transportation and time items and costs about 25c for 14 bags. That means he saves $4.05 on 14 bags or $8.10 on the month. You can see, Henry, that with the number of cows you have and the other work around here, an electric motor would be the best hired hand you could put on. Yes, I can bring out one of the motors tomorrow and we will hook it up. Then I want to talk to you about other things around here that electric motors can do for you better and cheaper than any human being."

Delco-Light Holds Sales Conventions

DEALERS and salesmen of the Delco-Light Company turned in orders for more than half a million dollars worth of farm electric plants and electric water systems, all obtained during the early days of January, at a series of regional conventions held recently by company officials.

The conventions were conducted by a party of department heads and other factory representatives from the general offices at Dayton, Ohio, who made a 6,000-mile swing through the east, south and middle-west in reaching the selling men with the Delco-Light 1929 sales message. Conventions were held in New York, Atlanta, Fort Worth, Chicago and Omaha.

Heading the party of factory officials was H. W. Arnold, general manager. Others who made the long convention trip and spoke at



H. W. Arnold, General Manager of the Delco-Light Company, with Delco-Light Plant No. 325,000, as It Comes Down the Assembly Track at the Factory in Dayton, Ohio

each of the five sessions were W. R. Huber, sales manager; C. C. Whistler, advertising and sales promotion manager; J. A. Smith, service manager; C. N. Cone, assistant sales manager; H. C. Patterson, head of D-L water systems sales; C. P. Ogden, in charge of battery sales; C. E. Wagner, head of cooperative sales division; J. E. Waggoner of the sales department; J. C. Morgan, of the Delco-Light division of General Motors Acceptance Corporation; and S. V. Jordan of the sales department.

Summarizing the convention series, Mr. Huber, sales manager, says orders turned in by selling men at all five conventions amount to a grand total of $508,631. These were orders obtained only a few days before each convention. The factory and district offices distributed special cash awards to men who have outstanding sales records, and these cash awards, given at the opening of each of the five conventions totaled more than $200,000.

"The Delco-Light business affords an excellent index of rural prosperity," Mr. Arnold said at the conclusion of the convention series. "Where there is available farm money, electricity and running water are among the first things which are purchased. The volume of orders turned in at our conventions gives evidence that the farm public is capable of buying now the conveniences which mean so much for rural efficiency and comfort."

Each point in the convention program was impressed forcefully on the minds of the selling men by means of playlets. The factory convention party carried a complete stage, with scenery and lighting equipment, and the program was presented under precisely the same conditions in each of the five cities.

Comparisons of airplane motor and Delco-Light engine operating time were given by Mr. Smith in his discussion of service problems. A playlet showing the building of a Delco-Light selling man's blood was presented by Mr. Cone and Mr. Patterson, and the sales of D-L water systems were discussed by Mr. Patterson in another playlet. Battery sales methods were presented by Mr. Ogden with the aid of a gigantic cardboard bulldog represented as guarding the selling man's pocketbook. C. E. Wagner brought out the new 1929 program of cooperative sales through a multiple-scene playlet, with S. V. Jordan and Mr. Smith in the cast of characters. Mr. Jordan talked on the two new 110-volt electric plants recently perfected and produced by the company. Means of cooperating with agricultural colleges and public utilities were discussed by Mr. Waggoner.

In stirring talks, Mr. Arnold dealt with fundamental problems in the selling man's business activities and in his personal affairs bearing on his results as a business man. In his closing talks at the banquets, he analyzed the elements in the Delco-Light business and explained how they could be applied to each individual's selling job.

Each of the conventions lasted an entire day, closing with a banquet and cabaret entertainment at night.

To Promote Farm Electrification in Virginia

Plans for the electrification of rural Virginia have been discussed by representatives of state departments, farm organizations and power companies, and machinery may be provided through which farmers can obtain an extension financed by the power company serving their areas, on a three-year contract. Two per cent per month of the cost of the extension is under consideration, this having proved workable in other places. The expense of the extension is computed at $1,200 to $3,000 a mile; thus, under a cost of $1,500, the cost of service would be $30 a month, which, if divided among half a dozen customers, would be reduced to $5 each. On behalf of the Virginia Electric and Power Company, President William E. Wood said that it is studying the subject and will do all in its power to simplify the farm electrification program.

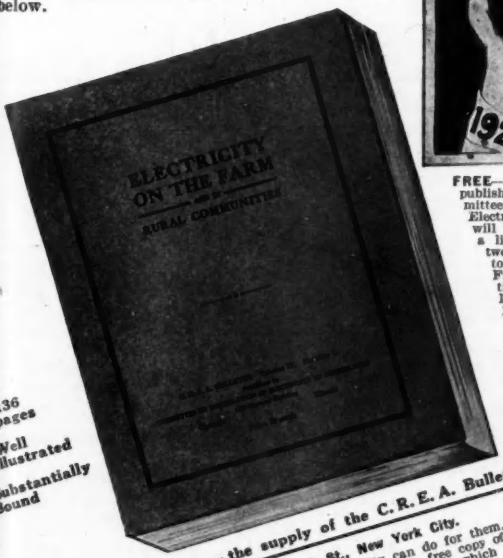
½ MILLION NEW FARMS to be electrified by 1932

THIS means profitable business for the dealer who can gain the confidence of these farmers. Knowledge of the field is the key to future profits. Your farmers will expect you to tell them—

What will it cost to wire their farm?
What equipment should they buy first and why?
How much does each device cost to operate?
How do operating costs compare with other methods?
What are the advantages of electric operated appliances?
What about this ——— I read about in "ELECTRICITY ON THE FARM?"

How many of the more than 200 applications for electricity in the farm home, in the field, and in the barn can you accurately describe.

You can get the answers to these and other important questions on this vital subject in the invaluable reference book illustrated below.



136 pages
Well Illustrated
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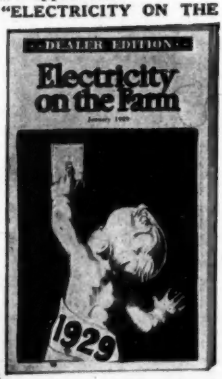


FREE—This 50c hand book, published by the Committee on the Relation of Electricity to Agriculture will be given away for a limited time with a two year subscription to Electricity on the Farm (Dealer Edition). For One Dollar ($1) you get this 136 page Volume and 24 issues of ELECTRICITY ON THE FARM.

Fill out this coupon today—the supply of the C. R. E. A. Bulletin is LIMITED.

To ELECTRICITY ON THE FARM, 225 W. 34th St., New York City.

I want to be able to tell my rural prospects what Electricity can do for them, so please send me ELECTRICITY ON THE FARM each month for two years, and a free copy of C.R.E.A. Bulletin, Vol. 4, No. 1, the total cost of which is to be $1.00 for which I enclose check — money order — stamps.

Name.....

Address .....

Business .....

Water Heating

(*Continued from page D8*)

whether or not a booster unit is installed, to operate on a higher rate during the day.

(1) Northern conditions—5 or 6 room room, 1 bath, 75 gallons; large home, 2 baths, 100 to 150 gal.; minimum, 52 gal.

(2) Southern conditions: 5 or 6 room, 1 bath, 52 gal.; large home, 2 baths, 100 to 150 gal.; minimum, 30 gal.

c. Heater Installation.

(1) Insulation on the tank adequate to maintain the temperature with a minimum drop in 24 hours is important.

(2) Insulation of all exposed hot water piping very desirable.

(3) Increase in maximum storage temperature to 180° to 200°F. will increase the thermal capacity of the heater with reduction in the tank size.

(4) The heater should be located as close as possible to the point of most frequent use.

(5 Booster units of 3 K W operated manually at a higher rate than that allowed for off-peak service provide an admirable means of guarantee against water shortage even under extreme conditions of draw off. Such units can be installed on a double throw switch with the range.

d. Auxiliary Control Equipment. A time switch to limit the use of current to off peak hours as, for example, 9 p. m. to 8 a. m. The longer the heating time allowed the better the service will be and the smaller the necessary tank.

2. Advantages of the Method.

a. Justifies a very low rate per Kw.-Hr. This is imperative for customer acceptance.

b. Availability of generating capacity at night makes this a desirable load for steam generating systems. The advantage of this system to hydrogenerating systems varies.

c. Takes full advantage of storage of energy for domestic use.

3. Disadvantage of the Method—

a. Without the booster unit extreme draw off leaves the customer without hot water for hours.

b. Requires very large tanks which are frequently difficult to install.

c. The initial cost is usually high.

d. The operation at the higher charging temperature results in waste, lower efficiency and interesting scale formation.

Features affecting the efficiency of a Hot Water System

1. Always locate the heater nearest the faucet which is opened the greatest number of times daily. The reason is that the hot water left in the pipes cools rapidly and this volume should be held as low as possible.

2. *Size of Pipe*—9 ¾" pipe has 25% more radiation than a ½" pipe. It also holds nearly twice as much water per foot as does the

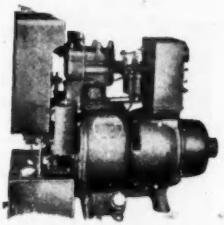
(*Continued on page D22*)

Pipe Data and Losses—Per Foot of Length

Pipe Diameter	U. S. Std. Gallons	Lbs. of Water Per ft.	Loss in Watts per Hour Bare Pipe	Covered 1" Asbestocel	Loss in KW Hrs. per Month—Bare Pipe in Circulation system 100° F. Rise
½"	.016	.132	13.26	2.05	9.55
¾"	.028	.231	16.50	2.55	11.88
1 "	.045	.374	20.04	3.22	14.43
1¼"	.078	.648	26.04	3.91	18.75

The above figures are based on 1 foot of pipe held at 100° F. above the surrounding air temperature.

This Exclusive Principle Assures Big Sunbeam Sales



Small batteries carry loads up to 200 watts—plant starts automatically on heavier loads.

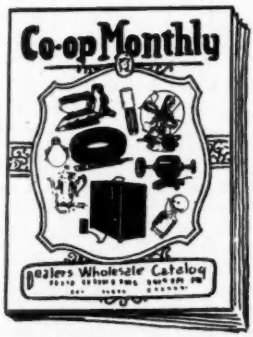
Farmers are quick to see the extra economy, simplicity and dependability of the Sunbeam Farm-Lite due to its exclusive revolutionary principle. Once they know the advantages of the Sunbeam, they are easy to sell. Satisfied users tell others—and soon you have developed a successful, profitable business.

We want live representatives. Write us today for our unusually profitable franchise offer.

SUNBEAM ELECTRIC FARM-LITE

Starts, Oils, Regulates and Stops Itself

SUNBEAM ELECTRIC MANUFACTURING CO.
Evansville, Indiana
Mfrs. of Railroad Lighting Equipment Since 1883



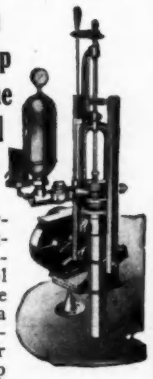
Dealers' Handy Guide, Illustrating Electrical Supplies, Appliances, Fixtures and Radio

FREE WRITE FOR YOUR COPY

Co-Op Electric Supply Co.

33 N. Union St. Chicago, Ill. 89-39th St. Brooklyn, N. Y.

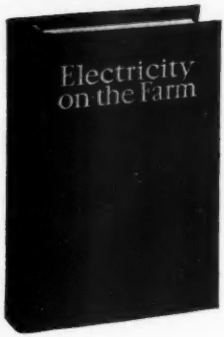
The Cullman Electric Pump Drive with the Cullman Well Casing Head



This unit operated by an Automatic Pressure Control switch is the foundation of a complete automatic water system for deep or shallow wells. It is something that will appeal to all your electrified customers.

Send for literature and prices.

Cullman Wheel Co.
1342 Altgeld St., Chicago, Ill.



Preserve Your Copies

of

Electricity on the Farm

EVERY issue, as you know, is packed full of interesting and helpful ideas, facts, and other useful information on selling electrified farm equipment that you, of course, like to keep handy for ready reference.

Why not make it easy to find what you want by keeping all your issues together in a binder? You would find this a great time saver and convenience.

We have a special one for subscribers with the words "Electricity on the Farm" printed in gold ink on the cover. The cost is only $1.50 and it holds the issues for a full year. Want one?

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I am enclosing check or money order for 1.50 for one "Electricity on the Farm" issue binder.

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.....

.....

½" pipe. This loss can amount to as high as 9 K.W. hours per day in large homes.

3. *Trap in Hot Water Outlet on Tank*—The trap prevents hot water rising outward in the single pipe and after cooling returning to heater in same pipe, thus causing a great loss in storage heater operation.

5. *Covering on Hot Water Line*—Look at pipe data above for this striking comparison. Be sure pipes are protected from outside temperatures.

6. In certain types of heaters where the heat is externally applied, a great loss in efficiency takes place as the inside of the tank becomes coated with scale and dirt.

A well insulated tank should never be installed direct to a furnace coil. Fig. 1 shows the proper method. The proper way to install circulation heaters and immersion heaters is shown in Fig. 2 and 3.

These are the "high points" in selecting and installing electric water heaters and the factors that make possible a satisfied customer with electricity selling at different rates.

CLASSIFIED ADVERTISING

Here is the opportunity you have been waiting for: Power and light that your farmer prospects can afford. New Dyneto power and light and battery charging generators which have a capacity of 20 lights, 32 to 40 volts, ball bearing, generous commutator, new model, parts always obtainable, equipped with pulley, ready to run. They can be operated from a one to two horsepower ordinary gas engine. Shipping weight, 75 lbs. Special price, $28.00. Retails for $85.00. Switchboard for the above, $22.50; batteries, $48.50. Largest stock of motors and generators in the Northwest. Do not buy, consult us first. Write, wire, or call GENERAL DISTRIBUTING COMPANY, SECURITY STORAGE BUILDING, DULUTH, MINNESOTA.

LIGHTING FIXTURES can be sold profitably to every town and country home if you have the right factory connection. Thousands of new prospects are wiring for central station or private plant service this Spring. Write today for our new catalog and prices. CHAPMAN LIGHTING STUDIOS, 640 West Lake St., Chicago.

Purdue Holds Short Course in Home Economics

A short course in gas and electrical household equipment was held at Purdue University March 25-30. This course was given by the Home Economics department of Purdue in cooperation with the Indiana Public Utilities Association. The course was planned primarily for women in Indiana and adjoining states who are interested in gas and electrical household appliances.

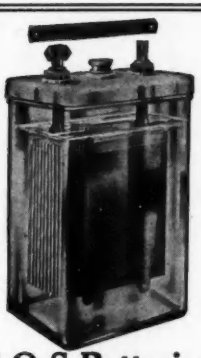
New Petersime Incubator

Within a short time the Wellington J. Smith Co., Cleveland, Ohio, who are exclusive distributors of the Petersime Electric Incubator, will announce a new type line of Petersime Electric Incubators.

Full details regarding the new model Petersimes have not yet been given out, nor will this information be released generally until the Petersime 1929 Year Book is published. This annual book will be ready for distribution earlier this year than usual, and formal announcement of its completion will be made through the columns of general poultry publications.

Mr. L. M. Shreve, Sales Manager of the Eastern District of the Puget Sound Power & Light Company, says "More than seventy-five per cent of the stationary spray plants in Washington are run by electricity, and we are bending every effort to further extend our service to other orchards.

Concerning details of construction and operation of the stationary spray plant, this information can be obtained in General Bulletin No. 212, "Stationary Spray Plant" by Harry L. Garver, State College of Washington, Pullman, Washington, and also in Bulletin No. 406, "Stationary Spray Plants in California", University of California, Berkeley, California.



S O S Batteries
for Farm Light Plants

Live dealers make big profits on this better battery.
Buyers quickly see the superior points that make S O S batteries so long lasting and trouble-free.
Write for new dealer proposition on this and other fine SOS batteries.

Victor Storage Battery Co.
Rock Island, Ill. (Est. 1914)

Buy by Mail from Brook and Benefit from the
LOWEST PRICES
on
FIXTURES - RADIO
CONST. MATERIALS - APPLIANCES

Our New Catalog of Lighting Fixtures Is Ready Now

This valuable handbook, beautifully illustrated in actual colors, presents a thoroughly up-to-date line of fixtures at low prices permitting an exceptional mark-up. It offers you a means of better buying and more profitable selling—and a copy will be sent gladly upon receipt of your request.

Send for Our Big New Catalog and See for Yourself

BROOK
Electrical Supply Co.
213-15-17 SO. PEORIA ST.
Chicago.

GUARANTEED BY THEIR NAME
GENERAL ELECTRIC CLEANER
YOU'VE NEVER FOUND SUCH CLEANERS AT SUCH LOW PRICES
WELCOME the new HAND CLEANER
GENERAL ELECTRIC CLEANER

The first two of a series of full-page two-color advertisements in a campaign which carries right through to next Christmas.

A combined monthly circulation of over 8½ millions to sell G-E Cleaners for you!

In addition to this great nation-wide campaign, there is an intensive newspaper series (on which you get a generous allowance), an interesting group of folders and mailing pieces and window displays. There is, also the Mr. How-to-do-it Tag which has aroused so much favorable comment.

Get complete information by phoning or wiring the General Electric Merchandise Distributor near you or Section C-624, Merchandise Department, General Electric Company, Bridgeport, Connecticut.

$35	**$24.50**	**$13.50**
STANDARD MODEL	**JUNIOR MODEL**	**HAND CLEANER**
less attachments	**less attachments**	
	(East of the Rockies)	

Two sets of attachments with special swivel joints—at $6.50 and $10.00.

GENERAL ELECTRIC CLEANER